

## **APPENDIX III**

**Table AIII**  
**Analytical Methods**  
**2004 National Residue Program**

Compound Class	Compound	Analytical Method			Minimum Proficiency Level <sup>a</sup>				
		Screen	Determinative (quantitative)	Confirmatory (identification)	Screen	Determinative (quantitative)	Confirmatory (identification)		
Antibiotics	Carbadox		GC-ECD	TBD		15 ppb	TBD		
	Chloramphenicol		GC-ECD	GC-MS		0.25 ppb (M)	0.30 ppb (M)		
	Florfenicol		HPLC	GC/SIM-MS		1.9 ppm (L)	1.9 ppm (L)		
Antibiotics : <i>beta</i> -Lactams	Amoxicillin	7-Plate Bioassay	Bioassay	HPLC/MS- MS		TBD	TBD		
	Ampicillin					0.01 ppm	10 ppb		
	Cefazolin					0.02 ppm	50 ppb		
	Cloxacillin					TBD	TBD		
	Desacetyl cephapirin					0.1 ppm	100 ppb		
	Desfuroylceftiofur cysteine disulfide (DCCD)					0.05 ppm	50 ppb		
	Dicloxacillin					0.05 ppm	50 ppb		
	Nafcillin						20 ppb		
	Penicillin-G					0.05 ppm	50 ppb		
	Oxacillin					TBD			
Antibiotics : Tetracyclines	Chlortetracycline	7-Plate Bioassay	Bioassay	HPLC	0.01 ppm	0.05 ppm	0.5 ppm		
	Oxytetracycline				0.5 ppm	0.40 ppm			
	Tetracycline								
Antibiotics: Macrolides	Clindamycin	7-Plate Bioassay	Bioassay	HPLC/MS- MS		0.1 ppm			
	Erythromycin					0.05 ppm	0.1 ppm		
	Lincomycin						0.1 ppm		
	Pirlimycin						0.1 ppm		
	Tilmicosin		HPLC- Ion Pairing			300 ppb (M) 600 ppb (L,K)	0.1 ppm		
	Tylosin					0.2 ppm	0.1 ppm		

**Table AIII – continued**  
**Analytical Methods**  
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Compound Class	Compound	Analytical Method			Minimum Proficiency Level <sup>a</sup>		
		Screen	Determinative (quantitative)	Confirmatory (identification)	Screen	Determinative (quantitative)	Confirmatory (identification)
Antibiotics: Aminoglycosides	Amikacin	7-Plate Bioassay	Bioassay	HPLC/MS-MS		1.0 ppm (L,K), 0.4 ppm (M) 0.4 ppm (K) 0.1 ppm (L,M) 0.4 ppm (L,K,M) 0.1 ppm (K,M), 0.4 (L) 1.0 ppm (L,K) 0.4 ppm (M) 4.0 ppm(L), 2.0 ppm (K), 0.4 ppm (M) 0.1ppm (K,M), 0.4 (L) 1.0 ppm (L) 0.4 ppm (K,M) 0.4 ppm (L,K,M) 1.0 ppm (L) 0.1 ppm (K,M)	
	Apramycin						
	Dihydrostreptomycin						
	Gentamicin						
	Hygromycin						
	Kanamycin						
	Neomycin						
	Spectinomycin						
	Streptomycin						
	Tobramycin						
Arsenicals	Arsenicals		AAS	AAS		0.2 ppm	0.2 ppm
Avermectins	Ivermectin		HPLC	HPLC/APCI-MS		7.5 ppb	25 ppb
	Doramectin						
	Moxidectin						
<i>beta</i> -Agonists	Cimaterol	ELISA			6 ppb		
	Clenbuterol	ELISA		LC/MS-MS	3 ppb		TBD
	Ractopamine		HPLC	LC/MS		1 ppb (M), 25 ppb (L)	1 ppb
	Salbutamol	ELISA			3 ppb		
Hormones, synthetic	Diethylstilbestrol (DES)		GC-MS	GC-MS		0.5 ppb	1.0 ppb (L,M)
	Zeranol	ELISA	GC-MS	GC-MS	0.5 ppb	1.0 ppb	5.0 ppb (L)
	<i>alpha</i> -Trenbolone			GC/MS-MS	5.0 ppb		5.0 ppb (L)
	<i>beta</i> -Trenbolone			GC/MS-MS			5.0 ppb (M)

**Table AIII – continued**  
**Analytical Methods**  
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		Screen	Determinative (quantitative)	Confirmatory (identification)	Screen	Determinative (quantitative)	Confirmatory (identification)
Nonsteroidal Anti-inflammatory Drugs (NSAIDs)	Dipyrrones <sup>b</sup>	HPLC	HPLC		0.2 ppm	0.2 ppm	
	Flunixin	ELISA	HPLC	HPLC/ESI-MS-MS	50 ppb	62.5 ppb	125 ppb
	Phenylbutazone	ELISA		HPLC/ESI-MS-MS	50 ppb		50 ppb
Anabolic Steroids	Melengesterol Acetate (MGA)	ELISA	GC/ECD	HPLC/APCI-MS	5 ppb	10 ppb	12.5 ppb
Sulfonamides	Sulapyridine						
	Sulfadiazine						
	Sulfathiazole						
	Sulfamerazine						
	Sulfamethazine						
	Sulfachloropyridazine						
	Sulfamethoxypyridazine						
	Sulfaquinoxaline						
	Sulfadimethoxine						
	Sulfaethoxypyridazine						
	Sulfaphenazole						
	Sulfatroxazole						
	Sulfisoxazole						
Thyreostats	Sulfadoxine						
	2-Mercaptobenzimidazole						
	6-Methyl-2-thiouracil						
	2-Mercapto-1-methylimidazole						
	6-Phenyl-2-thiouracil			HPLC/MS-MS			25 ppb

**Table AIII – continued**  
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Compound Class	Compound	Analytical Method			Minimum Proficiency Level <sup>a</sup>		
		Screen	Determinative (quantitative)	Confirmatory (identification)	Screen	Determinative (quantitative)	Confirmatory (identification)
Thyreostats (continued)	6-Propyl-2-thiouracil			HPLC/MS-MS			25 ppb
	2-Thiouracil						
CHCs/COPs/PCBs	Aldrin	GPC with GC-EC	GC-MS		0.10 ppm		
	<i>alpha</i> -BHC				0.10 ppm	0.01 ppm	
	Captan				0.04 ppm		
	Carbophenothion				0.06 ppm		
	Chlorfenvinphos				0.05 ppm		
	Chlorpyrifos				0.10 ppm		
	<i>cis</i> -chlordane				0.30 ppm		
	Coumaphos-O				0.20 ppm		
	Coumaphos-S				0.20 ppm		
	Dieldrin				0.10 ppm	0.01 ppm	
	Endosulfan I				0.02 ppm		
	Endosulfan II				0.04 ppm		
	Endrin				0.10 ppm	0.03 ppm	
	HCB				0.10 ppm	0.01 ppm	
	Heptachlor epoxide				0.10 ppm	0.10 ppm	
	Heptacholr				0.10 ppm	0.01 ppm	
	Kepone				0.06 ppm		
	Lindane				0.10 ppm		0.01 ppm
	Linuron				0.50 ppm		
	Methoxychlor				0.50 ppm		0.15 ppm
	Mirex				0.10 ppm		

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		Screen	Determinative (quantitative)	Confirmatory (identification)	Screen	Determinative (quantitative)	Confirmatory (identification)
CHCs/COPs/PCBs (continued)	Nonachlor	GPC with GC-EC		GC-MS		0.15 ppm	
	o,p'-TDE					0.15 ppm	
	Oxychlordane					0.04 ppm	0.1 ppm
	p,p'-DDE					0.10 ppm	0.02 ppm
	p,p'-DDT					0.15 ppm	0.04 ppm
	p,p'-TDE					0.15 ppm	0.04 ppm
	PCB 1260					0.50 ppm	
	PCB 1254					0.50 ppm	
	PCB 1242					0.50 ppm	
	PCB 1248					0.50 ppm	
	Phosalone					0.02 ppm	
	Ronnel					0.03 ppm	
	Stirofos					0.06 ppm	
	Toxaphene					1.00 ppm	
	trans-chlordanne					0.30 ppm	

a. Minimum Proficiency Level: The minimum concentration of a residue at which an analytical result will be used to assess a laboratory's quantification capability. This concentration is an estimate of the smallest concentration for which the average coefficient of variation (CV) for reproducibility (i.e., combined within and between laboratory variability) does not exceed 20 percent (9 CFR 318.21).

b. 4-methylaminoantipyrine, 4-formylaminoantipyrine, and 4-aminoantipyrine

**Table AIII – *continued***  
**Analytical Methods**  
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Key:

AA = Atomic Absorption Spectroscopy

APCI = Atmospheric Pressure Chemical Ionization

CHCs = Chlorinated hydrocarbons

COPs = Chlorinated organophosphates

ECD = Electron Capture Detection

ELISA = Enzyme Linked Immunosorbent Assay

GC = Gas Chromatography

GPC = Gel Permeation Chromatography

HPLC = high performance liquid chromatography

K = Kidney

L = Liver

M = Muscle

Method detection limit = The lowest quantity of residue (or sample component) that can be reliably observed or found in the sample matrix by the analytical methodology used.

MS = Mass Spectroscopy

NA = not applicable

PCBs = Polychlorinated biphenyls

ppb = parts per billion

ppm = parts per million

SIM = selected ion mode

TBD = To be determined

TLC = Thin Layer Chromatography

## APPENDIX IV

### STATISTICAL TABLE

Table AIV, *Statistical Table*, indicates the number of samples required to ensure detection of a violation that affects a given percentage of the sampled population.

**Table AIV**  
**Statistical Table**

Percentage Violative in Sampled Population	Probability of Detection (Percent)			
	90	95	99	99.9
	Samples Required			
10	22	29	44	66
5	45	59	90	135
1	230	299	459	688
0.5	460	598	919	1,379
0.1	2,302	2,995	4,603	6,905
0.05	4,605	5,990	9,209	13,813